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**EDUCATIONAL LEADERSHIP IN
PHYSICIANS' SPECIALIST TRAINING
- PROGRAMME DIRECTORS'
EXPERIENCES**

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EDUCATIONAL LEADERSHIP IN PHYSICIANS' SPECIALIST TRAINING
- PROGRAMME DIRECTORS' EXPERIENCES

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ABSTRACT

Competent physicians working in teams with other health professionals are a prerequisite for excellent patient care. The context for this thesis is physicians' specialist training, which consists of workplace learning in an environment primarily designed for other purposes than education, with sometimes contradictory objectives. Educational leaders have been singled out as important for the educational quality. Their tasks are complex and their influence on education may be challenging. Notwithstanding, factors that are influencing effectiveness in completing the tasks remain unexplored. The overall aim of this thesis is to explore educational leadership in physicians' specialist training. The central research question is, 'Which factors influence the role of the programme directors in Sweden?' The four empirical studies are positioned within a cultural conceptual perspective on leadership, recognizing context as an influential factor in facilitating and limiting leadership. The studies are guided by a constructivist approach, three using qualitative methods and one a quantitative method. *Study I* explored programme directors' perceptions of their work tasks, interpreted within Bolman and Deal's theoretical framework. The structural (structuring the education) and human resource function (supporting individuals and handling relations) were emphasized. Less described were the political (negotiating and mediating) and the symbolic function (influencing the educational culture). *Study II* explored factors perceived to influence programme directors' effectiveness. Individual factors, such as the programme director's own competence, were mainly facilitating, while structural factors, such as conditions for the role, were mainly hindering. Whether relational (such as communication and support) and attitudinal factors (such as values and attitudes) were perceived to be hindering or facilitating differed between the participants. *Study III* investigated factors related to the role of the programme directors that are associated with high educational quality. The findings showed that factors at both individual, relational, attitudinal and structural level were associated with high quality. Factors related to communication, support and attitude seemed to be of particular importance. Most high-quality education was found for the programme directors at a single unit that experienced sufficient impact on education. *Study IV* explored the process of successful change implementation. Similarities shown included experiencing the change to be meaningful, working in coalition with others and employing a long-term perspective on change, where involvement and anchoring were essential. Experiencing mandate was central, which was dependent on the next level of leadership.

The findings show that the programme director role is influenced by contextual factors such as organisational characteristics and values, factors related to the leadership role such as conditions for the role and competence, and factors related to the specialist training organisation and climate, such as communication and attitudes. Power and mandate are central concepts, and since the role mainly relies on personal power sources, relational factors may be of particular importance. In line with a diminished focus on leadership traits, the main message in this thesis argues that in order to strengthen the role of programme directors, a differentiated strategy with an aim to increase programme directors' influence on specialist training should be used.

SAMMANFATTNING PÅ SVENSKA

Kompetenta läkare som ingår i team med annan vårdpersonal är en förutsättning för god patientvård. Denna avhandlingen tar sin utgångspunkt i läkarnas specialiseringstjänstgöring, bestående av arbetsplatslärande i en miljö som främst är utformad för andra syften än utbildning, med ibland motstridiga mål. De pedagogiska ledarna har framhållits som viktiga för utbildningens kvalitet. Rollen är komplex och att få inflytande på utbildningen kan vara utmanande. Trots detta har faktorer som påverkar möjligheten att utföra dessa uppgifter förblivit outforskade. Huvudsyftet med den här avhandlingen är att utforska det pedagogiska ledarskapet inom läkarnas specialiseringstjänstgöring. Den centrala frågan är: "Vilka faktorer påverkar studierektorernas roll i Sverige?" De fyra empiriska studierna anlägger ett kulturellt konceptuellt perspektiv på ledarskap, vilket ser kontexten som en bidragande faktor när det gäller att främja och hindra ledarskapet. Studierna är genomförda med ett konstruktivistiskt synsätt, med tre studier med kvalitativa metoder och en med kvantitativ metod. *Studie I* utforskade studierektorernas arbetsuppgifter inom ramen för Bolman och Deals teoretiska ramverk. Deltagarna framhävde den strukturella (att strukturera tjänstgöringen) och HR-funktionen (att ge stöd åt individer och hantera relationer). I mindre grad beskrevs den politiska (förhandling och medling) och den symboliska funktionen (att påverka utbildningskulturen). *Studie II* utforskade faktorer som påverkar studierektorernas effektivitet. Individuella faktorer, såsom den egna kompetensen, beskrevs framför allt som underlättande, medan strukturella faktorer, såsom förutsättningarna för rollen, ansågs hindrande. Huruvida relationella faktorer (såsom kommunikation och support) och attitydmässiga faktorer (såsom värderingar och attityder) betraktades som hindrande eller främjande skiljde sig åt mellan deltagarna. *Studie III* utforskade hur faktorer relaterade till studierektorsrollen är associerade med hög utbildningskvalitet. Resultaten visade att faktorer på både individuell, relationell, attitydmässig och strukturell nivå är associerade med hög kvalitet. Faktorer relaterade till kommunikation, stöd och attityd tycktes vara särskilt viktiga. Utbildning med högst kvalitet påträffades i fall där studierektorerna hade ansvar för en klinik, och upplevde stora påverkansmöjligheter på utbildningen. *Studie IV* undersökte framgångsrika förändringsprocesser. Gemensamt för processerna var upplevelsen av att förändringen var meningsfull, vikten av att samverka med andra och anlägga ett långsiktigt perspektiv på förändring, där involvering och förankring är nödvändiga delar. Upplevelsen av att ha mandat var central och avhängigt ledarskapet på närmast överordnade nivå.

Sammantaget visar avhandlingen att studierektors rollen påverkas av kontextuella faktorer som organisationens egenskaper och värderingar, faktorer relaterade till ledarrollen såsom förutsättningar för rollen och kompetens samt faktorer relaterade till specialistutbildningsorganisation och klimat, såsom kommunikation och attityder. Makt och mandat är centrala begrepp, och eftersom rollen huvudsakligen bygger på personliga maktkällor kan relationella faktorer vara av särskild betydelse. I linje med ett minskat fokus på ledarens personliga egenskaper, är huvudbudskapet i den här avhandlingen att för att stärka studierektorernas roll bör en differentierad strategi användas för att öka deras inflytande på specialiseringstjänstgöringen.

LIST OF SCIENTIFIC PAPERS

- I. **Fryden H**, Ponzer S, Heikkilä K, Kihlström L, Nordquist J. Roles, tasks and educational functions of postgraduate programme directors: a qualitative study. Postgraduate medical journal. Oct 2015;91(1080):588-593.
- II. **Wijk H**, Ponzer S, Heikkilä K, Kihlström L, Nordquist J. Factors influencing effectiveness in postgraduate medical education - a qualitative study of experiences of the responsible clinical consultants. BMC Med Educ. 2019; 19:3
- III. **Wijk H**, Ponzer S, Järnbert-Pettersson H, Kihlström L, Nordquist J. Factors related to the role of programme directors in association with quality in postgraduate medical education – a cross-sectional study in Sweden. BMC Med Educ. 2019 Dec;19(1):462
- IV. **Wijk H**, Heikkilä K, Ponzer S, Kihlström L, Nordquist J. Successful implementation of change in postgraduate medical education – a qualitative study on programme directors. Manuscript.

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LIST OF ABBREVIATIONS

EPA(s)	Entrustable Professional Activity/Activities
HR	Human Resources
PD	Programme Director
PGME	Postgraduate Medical Education
UWES	Utrecht Work Engagement Scale
WFME	World Federation of Medical Education

1 PROLOGUE

My entry into this area stems from my childhood. Coming from a family with a father who worked as a physician and a mother who worked as a nurse, it was natural for me to spend a considerable part of my youth in the healthcare environment. My interest in people and human relations guided me to the psychology programme, which led to my becoming a registered psychologist in 2001. During my studies, I was introduced to the interesting and energising world of competence and skills development at the Unit for Competence Development at Karolinska Institutet and that was when I found my professional field. I continued on to the Swedish Medical Association, where I could combine my interest in the healthcare sector with my interest in competence development. In 2009, I started my own company, focused on developing postgraduate medical education (PGME) in different ways. My desire to realise a research perspective in the area led to the start of my PhD studies in medical education in 2012.

Against the background of my earlier experience and the lack of empirical data in the Swedish context, I wanted to explore the role of the Programme Director (PD) from a broad perspective with the hope to strengthen the PD role. The present work has the ambition of contributing with empirical data by way of four empirical studies based on the perceptions of PDs. I am convinced that educational leadership is a fundamental key in high qualitative specialist training and hopefully this thesis will be a piece of the puzzle that contributes to development of the role. The image at front of this thesis represent the two inseparable legs on which the PD role rests: education and clinical practice.

2 BACKGROUND

Competent physicians, as part of a team with other health professionals, are a prerequisite for excellent patient care. Their skills and competence continue to develop throughout their entire careers at the under- and postgraduate levels, which are followed by continuing medical education after specialist qualification is attained. Specialist training is the primary component of PGME and consists of workplace learning (Morris & Blaney, 2013; Raelin, 2008) where the residents work as physicians under supervision and participate in supplementary training such as courses. The scope of this thesis is specialist training. However, the term PGME is sometimes used when referring to empirical studies or other sources which do not separate specialist training from other parts of the postgraduate training, e.g. internship.

There are several factors of importance to the quality of PGME, such as coordinated programmes and timely rotations, clear learning goals, assessment, supervision and feedback (Cooke, Irby and O'Brien, 2010; Dornan, 2012; World Federation for Medical Education, 2015). One of the key factors that have been mentioned is educational leadership (Frenk et al, 2010; World Federation of Medical Education, 2015).

At clinical departments and healthcare units, educational leadership roles are often held by a consultant with a formal position in the faculty. The term, tasks and conditions for this role differ around the world (Malling, Scherpbier, Ringsted, 2007; Lieff e& Albert, 2012; Slootweg, van der Vleuten, Heineman, Scherpbier, & Lombarts, 2014) but the overarching aim is the same - to manage and support the training of residents, carried out in a context in which education is not in focus. In this thesis the term 'programme director (PD)' is used when referring to this educational leadership role.

The thesis is positioned within a cultural conceptual perspective on leadership, recognising that leadership is produced within a specific context that enables and constrains leadership practices in different ways (Jackson & Perry, 2011). In the following chapter, the context of specialist training for physicians is introduced. This is followed by educational leadership, which is presented in the light of the literature on general leadership that is of interest to the research questions and is then narrowed down to leadership within specialist training for physicians. A summary of the rationale rounds out the discussion.

2.1 THE CONTEXT: SPECIALIST TRAINING FOR PHYSICIANS

Postgraduate medical education

The World Federation for Medical Education (2015) defines PGME as the phase after the fulfilment of the basic medical qualification where physicians develop towards independent practice under supervision, involving pre-registration education (e.g. internship), specialist and sub-specialist training or other formalised education programmes for defined expert

functions. The format of specialist training varies around the world, for example in terms of admission policy, terminology, duration and content (Dornan, 2012; Wijnen-Meijer, Burdick, Alofs, Burgers, & Ten Cate, 2013). The body in charge of regulating and managing the specialist training also differs around the world. In common is the constant tension between healthcare production, where education should be conducted within a context primarily designed for other purposes than education with sometimes contradictory values and objectives.

The design of PGME is grounded by the assumption that physicians learning occurs through work (Cooke, Irby and O'Brien, 2010; World Federation of Medical Education, 2015) in the process of workplace learning (Morris & Blaney, 2010; Raelin, 2008). Workplace learning has been defined in several ways (Manuti, Pastore, Scardigno, Giancaspro & Morciano, 2015), one of which is as "learning situated in settings primarily designed for work" (Tynjälä, 2008). Opposed to formal education, workplace learning is taking place in an informal context (Eraut, 2004). However, informal learning is not only unconscious or unplanned, it is also incorporating both intentional and incidental learning (Eraut, 2004). What constitutes successful learning and outcomes from workplace learning, differs between practices and researchers (Manuti, Pastore, Scardigno, Giancaspro, & Morciano, 2015). Factors identified as affecting informal learning are learning factors (e.g. confidence, commitment, challenge and value of the work), contextual factors (e.g. structuring the work, encounters and relations with people at work) (Eraut, 2004), strong learning goals (Swanwick, 2005) and quality in the learning process occurring between supervisors and residents (Wiese, Kilty, & Bennett, 2018). It has been proposed that a dichotomising approach of informal and formal learning could be altered through the analysis of learning situations in terms of attributes of formality and informality (Malcolm, 2003).

The clinical environment offers rich learning opportunities but is also challenging for both learner and educator, with constant tension with patient care (Dornan, 2012; Taylor, & Hamdy, 2013). Also, current changes in the clinical environment may negatively affect the work place learning in medical education (Cooke, Irby and O'Brien, 2010; Di Somma et al., 2015, Weiss, Bagian, & Nasca, 2013). Trends in PGME are now moving towards a more formal and structured learning process, which is among other explanations due to a lack of clinical experience as a result of changes in residents' working hours, as well as shifts in the healthcare system (Swanwick, 2005).

Specialist training that undergoes a development from a time- and process-based model to a competency-based system has been introduced (Cooke, Irby and O'Brien, 2010; Iobst et al., 2010). The extent to which this is implemented differs between different countries (Weggemans, van Dijk, van Doijeweert, Veenendaal, & Ten Cate, 2017). The introduction of milestones (Holmboe, Call, Ficalora, 2016, Holmboe & Durning, 2018; Accreditation Council for Graduate Medical Education, 2017) and entrustable professional activities

(EPAs) (Englander et al., 2016; Hauer et al., 2013; Holmboe & Durning, 2018) are beginning to be incorporated into PGME for reporting on the progress of individual residents.

Specialist training in Sweden

In Sweden, the medical education system is undergoing change. It currently takes 5.5 years of undergraduate education followed by 18–24 months as an intern in order to attain a license to practice. This is then followed by a minimum of 5 years of specialist training. The new system consists of 6 years of undergraduate training, followed by a mandatory foundation period before starting the specialisation. The physicians will then undergo a minimum of five years voluntary specialist training in order to achieve specialist qualification. As the specialist training is competency-based and goal-oriented, the final duration of the training depends on when the resident has achieved the goals.

Specialist training is governed by the regulations and general advice of the National Board of Health and Welfare (Socialstyrelsen, 2015) and is executed by the county councils and regional bodies at the regional level which finances and delivers health services. The head of department at each department/healthcare centre has responsibility for specialist training with considerable autonomy in the determination of the methods and training schedules, under the condition that the regulations are followed. In addition to the regulation of specialist training, the National Board of Health and Welfare also issues certificates of authorisation to practice as a physician, as well as specialist qualifications.

According to the Swedish regulations (Socialstyrelsen, 2008, 2015) PD has been a mandatory function in the faculty since 2008. Under the regulations, the PD should coordinate the external and internal training for residents and constitute an organisational support function for residents and supervisors, as well as for the head of department. This broad description means that the role of PD is designed in different ways within different workplaces/specialties. The number of residents as well as if the PD is responsible for one or several units differs. In some departments, the role of the PD is combined with a managerial position. It is common for the regions or hospitals to gather the PDs in a network lead by the postgraduate dean at regional or hospital level. Nevertheless, the network rarely has any decision mandate, instead working as a forum for competence development and consultancy for the postgraduate dean.

As summarised in Figure 1, the specialist training is thus regulated by the National Board of Health and Welfare, delivered by healthcare providers and managed within the organisation in a training line that includes PDs at various levels.

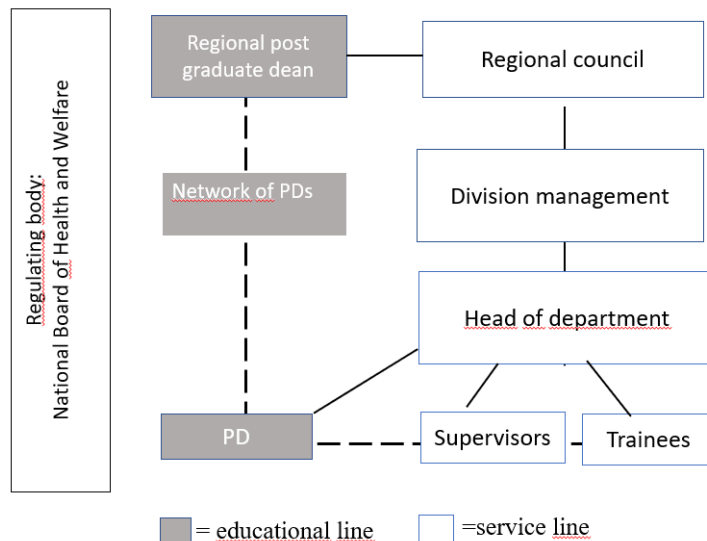


Figure 1. Example of how specialist training is organised in Sweden. The dotted lines indicate a loose connection.

Apart from changes in the structure of medical education in Sweden, a transition to a competency-based system is introduced. Challenges also include changes in the structure of healthcare which are reflected in the specialist training. For example, the increasing proportion of services that are bought from private healthcare providers by regions or county councils (with an agreement that guarantees that patients are covered by the same fees and regulations as healthcare that applies to municipal care facilities). However, the flow of residents has not followed to the private sector in the same proportion (Sveriges läkarförbund, 2015). Also, the number of licences to practice issued to physicians educated outside the Swedish medical education system is vast (Socialstyrelsen, 2019), imposing special requirements on the faculty to customise the training to the individual's competence level.

The concepts of context and culture

Needle (2015) describe four levels of context: activity or functional level (e.g. operations and human resource management), strategic level (e.g. the formulation of goals and objectives), organisational level (e.g. structure and organisational culture) and environmental level (e.g. the state and culture). The concept of context can then be understood as a wide construct including different kinds of context, of which organisational culture is one (Northoff, 2013). The phenomenon of organisational culture have been defined in several ways, of which the definition of Schein (2004, p.1.) is commonly used: "Culture is both a dynamic phenomenon that surrounds us at all times, being constantly enacted and created by our interactions with others and shaped by leadership behavior, and a set of structures, routines, rules and norms that guide and constrain behavior". Culture is based on a number of assumptions, for example about the relationship between the organisation and the outside world that forms its environment. The relationship between leadership and culture is reciprocal - leaders build culture and culture influences the kind of leadership that is enacted (Schein, 2004).

Context has long been a major focus in qualitative enquiry, where researchers seek to explain and describe social phenomena and actions (Holstein & Gubrium, 2007). In leadership research, three different assumptions about the relationship between context and leadership can be identified (Osborn, Uhl-Bien, & Milosevic, 2014). First, leader-centric approaches regard context as a contributing factor that can be circumvented by different leadership traits and behaviours. Second, context alters the impact of leadership on various criteria. Contingency theories of leadership are examples of this assumption. The third assumption recognises context as an influential factor that facilitates and limits the type of leadership, as well as leadership effectiveness. This thesis is positioned within the latter assumptions.

2.2 THE LEADERSHIP ROLE: EDUCATIONAL LEADERSHIP IN PHYSICIANS' SPECIALIST TRAINING

Starting with definitions and concepts, this chapter presents general leadership literature linked to the scope of this thesis and narrows down to educational leadership in specialist training.

Leadership – definitions and relevant concepts

In the literature leadership has numerous definitions and throughout the years, the definitions have focused on aspects such as domination, influence with focus on the traits of the leader, influence with focus on the behaviour of the leader and the process of transformation towards a goal (Rost, 1993). Yukl (2010, p 8) defines leadership as “the process of influencing others to understand and agree about what needs to be done and how to do it, and the process of facilitating individual and collective efforts to accomplish shared objectives”. This description introduces supportive and facilitation aspects to leadership, which is congruent with the aim of the role of the PDs as defined by Swedish authorities (Socialstyrelsen, 2015). The definition also highlights the process, implying that leadership is not a fixed trait but something that happens in an interactive and non-linear event (Northouse, 2018). As seen above, definitions of leadership are often general for the purpose of being applicable in different situations and contexts. However, it has been argued that such loose definitions don't consider the complexity and specificity that exists in the organisational context and the culture in which leadership takes place (Alvesson, 2011). Defining leadership also includes separating the phenomenon from management. In simple terms, managers have subordinates and a position of authority and power given to them by the employer (Barid Nizarudin, 2017). The tasks include planning, organising, budgeting, coordinating and monitoring activities for a group or organisation (Kotter, 2000).

Leadership as a research area is vast. Jackson and Perry (2011) distinguish five different theoretical perspectives that are reflected in leadership research.

- Leader-centred research focuses on the traits and behaviours of the individual.
- Follower-centred research focuses on the adaption between the leader and the needs of the followers. Both of the above perspectives aim to answer the overall research question about

what makes a leader “good”.

- Research in the area of the critical and distributed perspective focuses on dispersed and collective leadership.
- Leadership with a purpose includes studies of ethical and visionary leadership.
- Finally, the cultural leadership perspective focuses on leadership in relation to organisational context and culture.

Emerging perspectives in leadership include among others, followership, complexity leadership theory (Avolio, Walumbwa, & Weber, 2009) and virtual leaders (Boje, Pullen, Rhodes, & Rosile, 2011). In educational leadership research, the focus has mainly been on the characteristics of leadership and the relationship between leader and subordinate (Gurr, 2015), thus focusing on the two first perspectives above.

Leadership effectiveness is a core topic in leadership research, usually examined from a leader-centered perspective, where individual traits and behaviours related to leadership effectiveness are studied (Bass & Bass, 2008). These kinds of studies depend on the criteria used for effective leadership, mainly focusing on two aspects: productivity and followers’ satisfaction. The first refers to the result of the group led by the leader, the latter to subjective experiences of the leadership. It has for long been suggested that there is a need to generate other effectiveness criteria (Luthans, 1988; Bass, 2008). Factors influencing leadership effectiveness in the healthcare sector have been shown to include the behaviours, traits, contextual influences and practice settings and participation in competence development (Cummings et al., 2008). Effectivity is closely linked to the opportunities and ability of the leader to shape the behaviour of others, referred to as power or influence (Elias, 2008). One of the most commonly used models of power is that of French and Raven’s (1959). Their conceptual forms of power have remained relatively constant over the years (Elias, 2008), with a later addition of a sixth form of power (Raven, 1965):

- legitimate power (arising from the position)
- coercive power (based upon the ability to effect punishment)
- reward power (based upon the ability to reward others)
- expert power (based on the expertise of the individual)
- referent power (arising from the individual being liked and respected)
- informational power (the individual possesses needed or wanted information).

Sources of power are also divided into position power and personal power (Bass & Bass, 2008). Position power consist of potential influence that arises from the role held by the individual in the organisation, and deriving from legitimate authority, while personal power consists of impressions of a person built on for example competence, close relations and charisma. It has been shown that optimal motivation among the followers are more often related to personal power than to position power (Peyton, Zigarmi, & Fowler, 2019; Politis John, 2005). Furthermore, low level leadership, as in the role of the PD, has been pointed out

as being dependent on sources of personal power (DeChurch, Hiller, Murase, Doty, & Salas, 2010). Position power is closely linked to mandate, defined as authority to act in a particular way (Cambridge dictionary, 2020).

To describe different perspectives used by leaders and organisations, Bolman and Deal (2013) have designed a framework including four frames (Table 1). The framework has been employed and studied in different contexts, including academic leadership (Bolman, L.,G & Gallos, 2011; Vuori, 2011), healthcare (Bernardes, Cummings, Evora, & Gabriel, 2012; Sasnett, & Clay, 2008) and educational leadership in medical education (Lieff & Albert, 2010). Bolman and Deal defines a frame as a cognitive perspective that facilitates the determination of what is important and what is not by both people and organisations. For example, the frame influences the organisation in terms of how problems are defined and solved and what is done within the organisation. Multi-framing refers to an ability to employ a variety of different frames, which according to Bolman and Deal increases the effectiveness of the leader and organisation (Bolman & Deal, 1991).

Table 1: Summary of the four frames presented by Bolman and Deal (2011)

Frame	Explanation (focus and example of tasks)
Structural	<ul style="list-style-type: none"> • Goals and efficiency • Developing structures, policies, and role descriptions.
Human resource	<ul style="list-style-type: none"> • Human needs • Support, encouraging participation and motivation.
Political frame	<ul style="list-style-type: none"> • The organisations are seen as arenas of conflict and competition between different interests. • Negotiation, persuading and creating consensus in a diplomatic way.
Symbolic/cultural	<ul style="list-style-type: none"> • Cultural symbols and identity in the organisation. • Influencing culture and values

Educational leadership

The terms used to define the domain of educational leadership have developed from ‘educational administration’ and ‘educational management’ (Gunter, 2004). The literature on educational leadership is heterogenous and there is a lack of consensus in terms of the definitions and nature of the phenomena (Bush, 2007). One definition of educational leadership is “those leadership acts that improve the quality of teaching and learning, either through direct intervention into teachers' work or through creating school conditions that do

so indirectly” (Firestone, & Robinson, 2010). This definition applies to school leadership, which is the domain where the term educational leadership mostly is used (Gunter, 2004). When applied to the area of PGME, the setting changes from school to PGME and from teachers to supervisors/faculty.

Effectiveness criteria used in educational leadership is often student achievement, and there has been shown that the leadership has significant impact on learning outcomes (Robinson, Hohepa, & Lloyd, 2007). In cases where the leader is directly involved in for example curriculum planning and professional development, moderate or large leadership effects have been shown, which suggests that the leader should be close to the educational activities for maximal effectiveness (Robinson, Hohepa, & Lloyd, 2007). Factors related to being an effective principal are the ability of the leader to foster the school climate, oversight, supporting school administration and effective collaboration with all stakeholders (Catano, Rickard & Strong, 2008). However, it has been argued that there is a lack of reliable and validated methods of measuring effectiveness of educational leaders (McCullough, Lipscomb, Chiang, Gill, & Cheban, 2016).

Educational leadership in physicians’ specialist training

Educational leadership in physicians’ specialist training can be understood in light of leadership in undergraduate medical education. However, while the latter takes place within the context of higher education, specialist training occurs as workplace learning in the healthcare sector with its specific features and challenges, as described earlier.

In the area of undergraduate medical education, leader-centred research in terms of skills, competencies and leadership styles and organisational culture aspects have dominated (Sundberg, 2019). Requirements of effective leadership has been showed to both organisational aspects as shared vision, goals and strategies, relational aspects as climate of trust and respect as well as individual aspects as transformational and collaborative leadership (Bikmoradi, 2010). Loba (2006) point out individual leadership features (e.g. leadership skills and emotional intelligence) as factors necessary for success, whilst organisational factors (e.g. organisational structure and the selection process) as hindering academic leadership in medical education. Challenges in implementing change has been described; leaders experience difficulties in engaging colleagues in change efforts (McGrath, Roxå and Bolander, 2019) and change can trigger resistance among colleagues (McGrath, Barman, Stenfors-Hayes, Roxå, Silén & Bolander 2016). On the same time, a lack of perspectives on authority and power has been identified (Lumby, 2019; Sundberg, Josephson, Reeves, & Nordquist, 2017). Jippes et al. (2012) explored the success factors for adaptation to curriculum changes. The success factors were identified as national legislation, strong need for change, visionary change agents and supportive and continuous leadership (Jippes et al., 2012).

At postgraduate level, educational leadership has been highlighted as one important factor for

educational quality (Ackreditation Council for Graduate Medical Education, 2017; World Medical Education, 2015). Nevertheless, research on faculty development, to which educational leadership belongs, is still not a well-researched area (Rotgans, 2012). Previous empirical research uses a primarily leader-centered approach, focusing on practices and competencies (see Table 2 for a summary) and competence development activities. Lieff and Albert (2012) identified five domains for PD practices, going from intrapersonal to systemic level. Another way of presenting the tasks was set out by Bing-You, Holmboe, Varaklis, & Linder, 2017), who proposes 12 EPAs connected to different levels; the organisation, residents, and faculty. Lieff et al., (2016) suggest five competence domains of importance for PDs, which form the basis for a competency inventory (Lieff et al., 2016).

Table 2. Task and competency frameworks for educational leaders at postgraduate level.

Medical education leader practice domains (Lieff & Albert, 2012)	Proposed Entrustable Professional Activities for Residency Programme Directors (Bing-You et al., 2017)	Leadership profiles (Slotweg et al., 2014)	Domains of leadership competence (Lieff 2016)	Hospital postgraduate programme director competencies (Malling et al., 2009)
Intrapersonal Interpersonal Organisational System	<ul style="list-style-type: none"> - Maintain programme accreditation - Conduct a resident evaluation programme - Support and mentor residents - Develop and strengthen faculty - Promote a positive clinical learning environment - Work as an administrative team member in the department and institution - Direct a recruitment and selection process - Oversee the remediation of underperforming residents 	Captain Career Professional Team-player	Communication and relationship Management Leadership Professionalism and self-management Management skills and knowledge	Technical skills Human skills Citizenship behaviour

Specific tasks that have been specially studied include recruitment (Weissbart, Stock, & Wein, 2015), wellness management amongst residents (Kolarik, O'Neal, & Ewing, 2018) and

change management (Fokkema et al., 2012). Mallings et al., (2007) found limited knowledge about responsibilities and tasks amongst all stakeholders around the PDs and also found that expectations varied. Another way of looking at skills is linked to PD use of the cognitive frames described by Bolman and Deal (see page 7). Medical education leaders at different levels were found to most commonly employ the human resource frame, focusing on creating alignment between the interests of the faculty and the interests of the organisation, followed closely by the use of the symbolic (creating a vision) and political frames (engaging in diverse stakeholder interests). The structural frame was employed but there was no significant emphasis put on it (Lief & Albert, 2010). With regard to skills and competence, it has been argued that PDs lack sufficient competence, both due to the fact that recruitment is often based on interest in education and not leadership, and to the fact that the role often is the individuals' first leadership position (Lief et al., 2016).

Studies of leadership effectiveness and factors influencing the role are limited and show somewhat contradictory results. PD participation in a fellowship was associated with higher graduate achievement and was also predictive of programmes being in the upper echelons for programmes in terms of board pass rates (Carek et al., 2015). Another study indicated that competence development activities for PDs had limited effect on leadership skills (Mallings, Mortensen, Bonderup, Scherpbier, & Ringsted, 2009). PDs evaluated using a multi-source feedback instrument were regarded as helpful in gathering information about competence, however this was not reflected in the individual development plans (Mallings, Bonderup, Mortensen, Ringsted, & Scherpbier, 2009). From a contextual perspective, it has been argued that the short tenure and large number of new PDs on an annual basis may impact programme quality and suggests more resources and support may be needed for PDs new in the position (Brown & Gerkin, 2019).

In summary, the author has chosen the following definition of educational leadership in physicians' specialist training: "Those leadership acts that improve the quality of supervision and learning, either through direct intervention into the work of the faculties or through the creation of learning conditions that do so indirectly" (based on the definition from Firestone, 2010). Overall, the results from previous studies show that the PD role is complex and involves tasks spanning different levels. The results from studies of activities aimed at influencing the effectiveness of PDs have been contradictory. There is a lack of knowledge about factors influencing effectiveness from a contextual approach. As far as is known, there are no empirical studies of educational leadership in PGME in the Swedish context.

2.3 CONCEPTUAL FRAMEWORK

A conceptual framework may be explained as a number of theoretical and empirical findings and concepts that is brought together to understand, explain or predict a phenomenon (Imenda, 2014; Liehr & Smith 1999). In research, the conceptual frameworks can be used to decide upon research questions, to select relevant methods and formulating the goals (Maxwell, 2005). Various frameworks have been proposed to conceptualise different contexts

for educational leadership (Fields, Kenny, & Mueller, 2019; Hallinger, Walker & Trung, 2015, Pan & Chen 2011). Hallinger, Walker & Trung (2015) propose a conceptual framework for school leadership that considers four aspects relevant to educational leadership:

- The organisational, political and socio-cultural features of the school context influencing both the leadership and desired outcomes for schools
- The leadership in terms of roles and practices enacted by the leaders in their daily work
- The school organisation and climate, mediating the effects of leadership
- The final effects of educational quality and outcome

When applied to this thesis, the conceptual framework has been adjusted to fit the educational context of physicians' specialist training. The conceptual framework has been used to shed light on the features of the research questions and the interpretation of the findings (Figure 3, p. 19 and Figure 4, p. 31).

2.4 RATIONALE BEHIND THE THESIS

Competent physicians are important to excellent patient care, which is part of improved health in society. Physicians' expertise in respective medical specialties are developed and safeguarded during specialist training. The importance of educational leadership to the learning outcomes is well established in the literature (Robinson, Hohepa, & Lloyd, 2007) and the importance of educational leadership at PGME has also been emphasised (Frenk et al, 2010, World Federation of Medical Education, 2015). Tasks of the PDs are complex and numerous (Lieff & Albert, 2012; Malling, Scherpbier, & Ringsted, 2007), whilst knowledge about the effectiveness among PDs in implementation of the tasks is lacking. Studies from educational leadership at undergraduate level show challenges regarding power and influence (McGrath, Barman, Stenfors-Hayes, Roxå, Silén & Bolander 2016; Sundberg, Josephson, Reeves, Nordquist, 2017) while studies at postgraduate level indicate that leadership effectiveness may be influenced by factors not only related to the individual leader (B. Malling, Mortensen, Scherpbier, & Ringsted, 2010). Despite this, the number of empirical studies on educational leadership in PGME are limited and most of the studies conducted have a leader-centered perspective on leadership.

Hence, there appeared to be a need for further research on the phenomena. Firstly, there seemed to be a general lack of research on educational leadership in PGME. Secondly, knowledge of how context enables and hinders leadership practices has not been studied. Finally, most scientific inquiries involve one method and there seems to be a need to aggregate a body of knowledge by collating all knowledge gained from both qualitative and quantitative methods. In addition, Sweden's National Board of Health and Welfare points out a need to improve the role and conditions for the PD (Socialstyrelsen, 2012). There have been no earlier empirical studies conducted in the Swedish context.

Taken together, this indicates there is a need for further exploration of the role of PD with research positioned within a cultural conceptual perspective on leadership. Such exploration may have the potential to shed light on the nature of educational leadership in clinical environments in terms of influencing factors. A deeper understanding would not only be beneficial in consideration of how the role can be strengthened, it would also be helpful in investigating how a cultural leadership perspective may be implemented in future research on the phenomena.

3 AIMS

The overall aim of this thesis was to explore educational leadership in specialist training for physicians. The central research question was, ‘Which factors influence the role of the PD in Sweden?’ The role was understood from the perspective of the PDs in relation to their task to contribute to a high qualitative education. The central unit of analysis is the educational leadership. The specific aims of the four studies were posed as follows:

Paper I

- To explore PDs’ perceptions of their own role in terms of tasks and functions.
- To use the framework of Bolman and Deal to gain a deeper understanding of these roles.

Paper II

- To explore PDs’ experiences of factors that influence the effectiveness of their work in both a positive and negative direction.

Paper III

- To investigate factors related to the role of programme director associated with quality in postgraduate medical education.

Paper IV

- To explore the process of successful change implementation for educational leaders in PGME.

4 METHODOLOGY

The first part of this chapter addresses the justifications underpinning the decisions made about the studied phenomena, while the second part addresses the methods and materials employed in the empirical studies. An overview of the methodological and theoretical positionings employed in this thesis are presented in Figure 2. The glasses symbolise the influence of these positionings on how we view the phenomena studied.

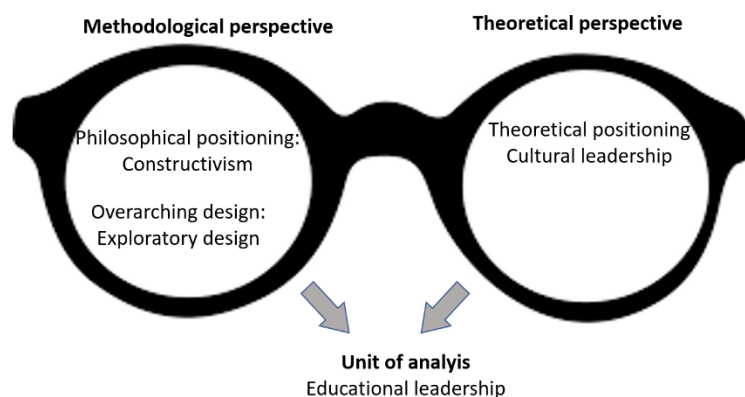


Figure 2: An overview of the positionings taken in this thesis.

4.1 PHILOSOPHICAL POSITIONING

Epistemology, ontology and methodology

Thomas Kuhn (1970) points out that scientific knowledge develops through paradigms. These are philosophical assumptions that lead to an individual's choice of research (Creswell, 2007). Paradigms can be described as “glasses” through which we look at the world around us and depending on which paradigm we use, we will search for, interpret and present different kinds of scientific result. Paradigms can be characterised through differences in ontology (how we look at reality), epistemology (the nature of the relationship between what is to be known and the researcher) and methodology (how new knowledge may be created) (Lincoln, Lunham, & Guba, 2011).

A constructivist approach guided this research project (Lincoln, Lunham, & Guba, 2011). The constructivism philosophical paradigm assumes that people construct their own understanding and knowledge of the world. The *ontology* is relativism, where there is no objective real world to discover but instead a socially constructed reality, which is dependent on each individual's subjective experience (Illing, 2010). *Epistemology* in the constructivist paradigm is that the researcher is seen as a subject - influencing how the data is understood and the research findings as a result of the subjective experience of the research subjects and the researcher, and the theoretical perspectives chosen to interpret data (Illing, 2010). *Methodology* refers to how new knowledge may be created and how the enquirer goes about finding it (Illing, 2010). The choice of methodology in the constructivism paradigm is reliant on the need to capture the subjective experiences of the research subject. When choosing methods within this approach qualitative methods as interviews, focus groups, observations

or documents are mentioned (Lingard, 2010). However, the distinction between qualitative and quantitative methods as relating to research philosophy has been criticised as it simplifies the heterogeneity of how methods are used (Allwood, 2012). Also, Neimeyer and Levitt (2001) point out the fact that it is the philosophy behind, with which the method is used that makes a method constructivist, not the type of method by itself.

Hence, the philosophical paradigm in this research guided the methodology in that knowledge is best captured by exploring the subjective experiences. In doing that, three qualitative studies were used. Qualitative research is above all based on textual data from diverse sources, which is which is systematically collected, ordered and interpreted (Patton, 2015). In addition to these qualitative methods, a quantitative method was used in study III. Quantitative methods are most often used to measure the size or extent of a phenomena (Kitto, Chesters, & Grbich, 2008). The results from the quantitative study are used to deepen the understanding of the phenomena and to build (construct) understanding of the research questions.

There are different reasons for using different methods (Greene, Caracelli, & Graham, 1989) – three of which have been particularly important in this project:

1. Different methods are one way to enhance the credibility as it allows the researcher to merge the data collected, so called method triangulation.
2. The methods are complementary and contribute to a deeper understanding of the phenomena. The qualitative data provide detailed information about how the role as a PD is experienced, enabling the researcher to explore a previously unexplored field and emphasise the voices of participants through quotes. The quantitative data supplied the project with information from a wider population to provide insight into the variation of experiences. This will also create the possibility of replication to another population to facilitate the comparison of groups.
3. The different methods help the development of the project, where the result from one project will shape the method for another. In this project, the first two studies form a basis for the third study.

In research, theories can be employed for several reasons (Bolander Laksov, Dornan, & Teunissen, 2017). In this thesis, theories were employed as a close-up exploration (Bolander Laksov, Dornan, & Teunissen, 2017) meaning that theories helped in identifying the area of interest to be studied and guided the research process as well as in understanding the data. In order to contribute to a holistic view of the research project, some of the theories are reused in the interpretation and understanding of the results of the various studies.

4.2 RESEARCH DESIGN

The thesis uses an exploratory research approach. Exploratory research is conducted to investigate a problem where the knowledge is limited and the problem not clearly defined (Ringsted, Hodges, & Scherpbier, 2011). On the basis of a general idea, exploratory research helps to determine domains that can be investigated in future research. It is often used in interpretive research in order to answer questions like what, why and how.

The four studies should complement each other in answering the research questions from different perspectives. The studies could be understood through their relationship to the conceptual framework described in the Background section. Leadership roles refers to the roles and practices enacted by the educational leaders, while context refers to different features that influence leadership and in extension the educational outcome. The organisation and structure of specialist training and the learning climate are influenced by both the leadership and the context. Finally, the ultimate effect of leadership is the educational quality and outcome.

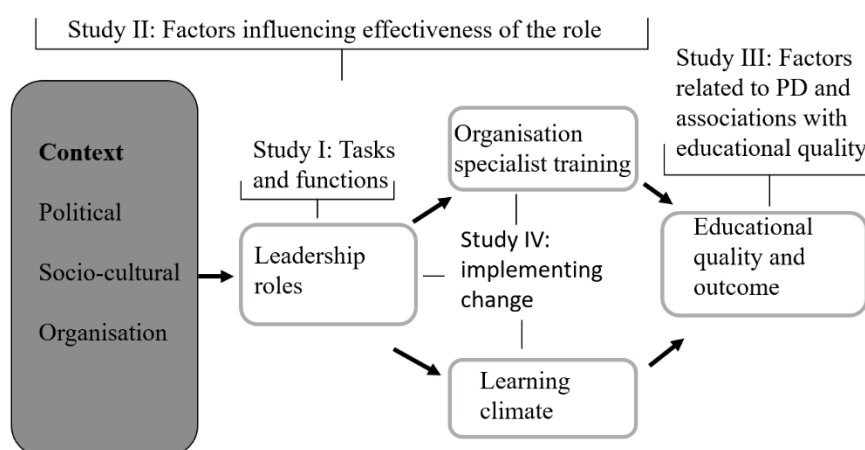


Figure 3: The four studies in relation to the conceptual framework of educational leadership, based on model from Hallinger, Walker & Trung (2015).

The studies were conducted consecutively and the results from one study guided the following study. How the PD's perceived their leadership role in terms of tasks and functions was explored in *Study I*. This study laid the foundation for other studies. *Study II* explored factors that were experienced as influencing leadership effectiveness. The factors were applied to different parts of the model to both contextual and leadership related aspects. Data from Study I and II was collected simultaneously but was analysed and recorded one by one. *Study III* was based on the results from the two first studies and investigated the association between PD-related variables and educational quality. The result showed that the PDs' influence on the specialist training was an aspect associated with high quality in specialist training. In order to further understand this process, *Study IV* explored how PDs with perceived high impact, implemented changes. With the political, socio-cultural and organisational context as a point of departure, focus was directed towards the PDs descriptions of how they proceeded step by step.

An overview of the research design can be seen in Table 3. Various steps were taken to interconnect the results of the individual studies and integrate these separate studies. Firstly, the four studies all focus on the same, clearly defined unit of analysis - educational leadership from the perspective of educational leaders. Secondly, Studies III and IV incorporated results from the previous studies. Thirdly, some theories were re-employed in the interpretation, understanding and explanation of the findings. The framework of Bolman and Deals (2011) is one such theory and the different concepts of power by French and Raven (1959) another. Finally, the results from all studies are discussed and summarised in a comprehensive manner in the concluding chapter.

Table 3. Overview of research design of papers included.

Study	Focus of enquiry	Research approach	Data collection and participants	Method of analysis
I	PD's work tasks	Qualitative	Semi-structured interviews	Deductive content analysis
II	Factors influencing PDs effectiveness	Qualitative	17 PDs	Inductive content analysis
III	Associations between factors related to PDs and educational quality	Quantitative	Questionnaire 279 PDs	Descriptive and analytical statistics
IV	Successful change implementation	Qualitative	Semi-structured interviews 16 PDs	Interpretative analysis

4.3 CONTEXT AND PARTICIPANTS

The context for the present project was specialist training in Sweden, described in the Background section. Studies I and II were conducted in two hospitals in Stockholm, of which one is a large university hospital with approximately 650 residents and 50 PDs and the other a large teaching hospital with approximately 270 residents and 16 PDs. Both hospitals offer training in most specialty programmes, with the exceptions of psychiatry and family medicine. Studies III and IV were carried out in a national context, covering PDs from different geographical locations around Sweden.

Participants

This thesis employed three different sampling strategies. Characteristics of the participants are summarised in Table 5.

Studies I and II

To achieve variation and breadth in the data, the first two studies employed a strategic, purposeful sample using maximum-variation sampling (Patton, 2015). In covering the variation of the studied phenomena, qualified guesses about how to obtain the variation should be used (Larsson, 2009). In accordance with the sampling strategy, participants who could contribute with in-depth information about educational leadership from different perspectives were chosen, where differences in gender, specialty, number of residents and experiences were sought. PDs holding managerial positions were also included in the sample. The participants were identified by working alongside individuals in each organisation. They were then recruited via an email sent by the research team. All individuals who were asked approved the request, resulting in a final sample consisting of 17 PDs, of which 5 also held managerial positions.

Study III

The third study consisted of all individuals voluntary registered in a PD register administered by the Swedish Medical Association. PDs with more than six months' experience were included, whilst PDs at internship level were excluded. The register didn't contain a complete and fully actualised list of PDs in Sweden. However, as there is no other PD register and the total number was still high, we considered the sample to be good enough. The individuals on the list were first contacted by an administrator from the Swedish Medical Association and were told that they could decline if they didn't want to participate. The final sample consisted of 519 individuals. The participants were invited by email and non-responders received three reminder emails about the survey. There was a response rate of 54% (279/519). The participants represented a breadth concerning both their medical speciality and geographical location in Sweden.

Study IV

The participants of the fourth study were selected from among respondents from Study III. Participants who reported in the survey that they had experienced a high impact on specialist training at their workplace were extracted. In the next step a strategic, purposeful sampling procedure was conducted in order to find both male and female participants with different specialties in different geographical locations. Based on this selection criteria, emails were sent out with information about the study and a request to participate. Some of the individuals were no longer PDs and others were not willing to participate (n=21). Six wanting to participate had difficulties finding a time for the interview. The final cohort consisted of 16 PDs (Table 4).

Table 4. Characteristics of participants in the different studies.

Study	Participants	Gender	Medical specialty
I	N=17	8 men	6 surgery
II		9 women	6 medicine 5 diagnostic
III	N=279	Women: 183 Men: 96	General practitioner: 59 Medicine/neurology: 50 Surgery: 75 Paediatric: 21 Auxiliary: 34 Psychiatry: 20 Other: 19
IV	N=16	Women: 11 Men: 5	General practitioner: 4 Medicine including paediatric: 3 Surgery: 3 Auxiliary: 4 Psychiatry: 2

4.4 DATA COLLECTION

Study I and II

Data for Studies 1 and II was collected in 2013 and consisted of individual, semi-structured interviews (Kvale & Brinkmann, 2009). Semi-structured interviews are characterised by the researcher asking the respondents a series of open-ended questions around several themes developed in a written interview guide (Given, 2008). The method was chosen firstly because it enables the interviewer to pose follow-up questions to anticipate and close gaps of understanding (Patton, 2015) and secondly because it has been found to be successful to build a co-operative relationship between the interviewer and the interviewee (Galletta & Cross, 2013). Both these qualities were sought as important in order to gain a rich description of the topics.

The doctoral student constructed the interview guide to get an overview of the research questions (Table 5). The interview guide consisted of questions on both work tasks (Study I) and influencing factors (Study II). In the interviews, the questions were discussed in parallel but were later separated in the analytical phase. Interview guides could be tested through internal testing, expert testing and field testing (Kallio, Pietila, Johnson, & Kangasniemi, 2016) of which the two latter were used in this study by testing the guide on potential study participants and experts within the field. Three pilot interviews were conducted and included in the material analysed. All interviews were conducted by the doctoral student at the workplace of each participant. The interviews lasted between 39 and 79 minutes (mean 55 minutes) and were digitally recorded and verbally transcribed.

Table 5. Interview guide Studies I and II.

Question	Data material
1. On a general level, what is your assignment as programme director? 2. Describe the work tasks you carry out as programme director 3. What do you do in order to carry out these tasks?	Study I
4. What are the obstacles that prevent you from carrying out these tasks in the best possible way? 5. What enables you to carry out these tasks in the best possible way?	Study II

Study III

As described in the Background section, educational leadership in specialist training is not easily equivalent to measurement of leadership in another context. When considering which instrument is to be selected, only appropriate, validated instruments were sought. However, considering the specific context and tasks that pertain to educational leaders in specialist training, few instruments provided appropriate information. Consequently, the questionnaire was constructed based on empirical studies in the area, primarily the results from Studies I and II. In addition, work engagement was measured using the Utrecht work engagement scale (Schaufeli, Salanova, González-romá, Bakker, 2002). In this context, the definition of work engagement is a positive behaviour that leads to work-related outcomes (Kim, Kolb, Kim, & 2013). This domain was added as the approach of the PD to the role could have a potential impact on the outcome variable.

Measuring educational quality can be done in several ways. Applying the framework of Kirkpatrick (2016), the following possible alternatives for measurements have been considered: the degree to which the residents find the training favourable (reaction), the learning development of the residents (learning), the degree to which the residents apply what they learn during the training (behaviour) and finally, the degree to which the competence of the residents affects the outcome of the healthcare (results). Another way of measuring health service and quality of healthcare is the conceptual model of Donabedian (Donabedian, 2003). According to the model, three categories are measured; structure (the context including staff, financing, patient flow), process (how the structure is utilised) and outcomes (effects on health status). Even if there are other quality of care frameworks, this has been used in evaluating the quality of residents in a somewhat revised version. A final way which we considered in developing the questionnaire was to measure perceived compliance with formal regulations. This was ultimately chosen because of its objective character, as well as the ability to duplicate the method in other context. The questionnaire was pilot-tested on 13 individuals. Finally, the survey contained of 30 questions concerning the following dimensions:

- demographic background (e.g. gender, age, geographic location)
- role-specific factors (e.g. number of residents, time for the assignment, access to decision-making bodies)
- educational quality (e.g. whether the regulations for specialist training were followed, own assessment of the quality)
- work tasks (tasks identified in Study I)
- hindering and enabling factors influencing the performance of work task (factors identified in Study II)
- work engagement, according to the UWES

The questionnaires were collected during the winter of 2016/2017.

Study IV

A semi-structured interview guide was developed (Table 7), exploring the participants' perceptions of managing changes in specialist training. Interviews were conducted in autumn and winter 2018/2019. The participants were asked by email before the interview to be prepared by thinking of examples of changes in which they had been involved as a PD, that they thought had resulted in positive consequences for the residents. All 16 interviews were individual, conducted by telephone by the doctoral student. The interviews began with an opening question, 'Can you tell me about any change in PGME in which you have been involved as a PD and that you think had a positive result for the residents?' A series of subsequent questions focused on descriptions of how the participant had implemented the change. In some interviews, more than one change process was described. The interviews ended with a conclusive question about what the interviewee's recommendations were to other PDs on how to implement successful changes.

Table 6. Interview guide Study IV.

Question
<p>1. Can you tell me about any change in the specialist training in which you have been involved as a PD that you think had a positive result for the residents?</p> <p>Examples of subsequent questions:</p> <p>Where did the initiative come from?</p> <p>What was your first step?</p> <p>How did you identify others with whom to collaborate?</p> <p>Did you identify any resistance? If so, how did you handle this?</p> <p>2. Do you have any other examples of change that you have been involved in? If yes, can you tell me about it? (questions as above)</p> <p>3. Have you been involved in trying to implement a change in your PD role that has not been successful? If so, what do you think it was about your approach that may have contributed to this?</p> <p>4. If you were to give advice to another PD starting a change project, what would you say?</p>

The interviews lasted between 41 and 66 minutes (mean 51 minutes). They were recorded and verbally transcribed.

4.5 DATA ANALYSIS

Study I

Studies I and II were based on the same interviews and the interview guide (Table 5) included questions about both work tasks (Study I) and influencing factors (Study II). No answer provided was analysed for both studies, meaning that the answers belonging to Study I and Study II were separated in the first step of the analysis.

For the first study, deductive content analysis was used. This analytical method is appropriate when the analysis is based on already existing models or theories (Patton, 2002). We used a theoretical model by Bolman and Deal (2013). The deductive analysis process was inspired by Elo and Kyngäs (2008).

First, the interview transcripts were read several times. Statements that addressed perceptions of work tasks were identified and coded according to their manifest content using the software Open Code 3.6 (Dahlgren L, 2007). Second, the codes were sorted using the theoretical framework of Bolman and Deal. From this, overall explanations for each frame, adapted to the data material were received. The explanations then served as an interpretation model for the detailed analysis of the material. The interpretation model was thus a processing of the original description of the four frames, adjusted to describe the work reported by the participants. Finally, the codes were sorted into the four frames in the interpretation model.

Study II

In the same manner as for the first study, answers in the transcripts regarding the research question (influencing factors) were marked and analysed. In Study II data was analysed with conventional content analysis (Hsieh & Shannon, 2005). This is an inductive method that includes reading the data, identifying meaning units, clustering the units into categories and subcategories and developing themes (Graneheim & Lundman, 2004). The interviews were first read through several times. Text regarding factors that were experienced to hinder and facilitate the work of the PD was extracted from the rest of the data. Secondly, two analyst members of the research team identified the meaning units for each text individually, followed by discussions about cases where meaning units differed until consensus was reached. Then, the analysts identified meaning units for the rest of the data. Thirdly, the meaning units were individually coded and the codes were discussed in the research team. Finally, the codes were sorted into categories based on their differences and similarities. The categories were gathered into themes. The findings were interpreted on the basis of previous research on educational leadership in specialist training and lower level leadership.

Study III

The characteristics of the PDs were analysed using descriptive statistics. Logistic regression

was used to study the relationship between high quality and the selected factors. The outcome was the quality of specialist training, which was defined as fulfilling the National Board of Health and Welfare regulations. Five paragraphs with mandatory regulations were chosen:

1. All residents have individual training programmes that comply with the requirements in the description of objectives.
2. The individual training programme is regularly followed up and revised if needed, in consultation with the programme director, supervisor and resident.
3. The resident has access to supervisors throughout each training period.
4. The resident's development is continuously assessed on the basis of the description of objectives and their individual training programme throughout the entire specialist training.
5. Continuous assessment is conducted using known and agreed assessment methods.

The outcome was dichotomised into high or low quality. High quality was defined as those individuals who answered three or four for all five statements (3=agree, 4= fully agree). Accordingly, low quality was defined as those individuals who answered one or two for one or more of the statements (1= totally disagree, 2=disagree).

The independent variables were factors related to the role of the PD. The answers regarding work tasks and influencing factors were dichotomised as follows:

For questions on work tasks, "yes" was defined as those individuals who answered 5-6 on the six-point scale (5=a fairly large part, 6=a large part). "No" was defined as those who answered 1-4 (1= never, 2=a small part, 3=a fairly small part, 4= neither).

For questions on enabling and hindering factors, "yes" was defined as those who answered 4-5 on the five-point scale (4=agree to a high degree, 5=totally agree). "No" was defined as those who answered 1-3 (1=totally disagree, 2=agrees to a low degree, 3=partly agree).

In the first step, the unadjusted association between high quality and each separate factor in the univariable models was studied. Furthermore, a multivariable model was used, adjusting for six factors: gender, years in practice, years as PD, medical specialty, the organisational level of the role and number of residents. These factors were considered to be associated with high quality but fixed with less possibility to influence within the organisation. The other factors were then added one by one. A p value of <0.05 was regarded as statistically significant.

To investigate which factors had the strongest association with quality, a classification tree was used. A CHAID algorithm was used to build the tree (Kass,1980). To identify the split that leads to the strongest association with high quality for each independent variable, the analysis starts with all data in one group followed by consideration of a split for each independent variable. Tree depth was limited to five levels, minimum parent node was set to 30 and minimum child node was 20. No split with Bonferroni adjustment of less than 0.05 was executed.

The Statistical Package for Social Sciences (SPSS version 23; SPSS Inc., Chicago, IL, USA) was used for the analysis.

Study IV

The interviews were analysed using Ödman's interpretative approach (Ödman, 2016). The transcriptions were repeatedly read by the first author to capture the ideas and assumptions regarding the meaning of the interview data. Each interview was summarized in a preliminary interpretation of the meaning of each text, resulting in a preliminary set of themes with descriptions. This was iteratively reviewed back and forth between the researchers' assumptions, ideas, questions and explanations, and the themes were validated by continuously comparing them to the interview texts. The analysis was continuously discussed and re-evaluated by three of the authors to enhance the reliability of the analysis by exploring different aspects, contradictory information and interpretations. This process continued until a coherent understanding of the contents and meaning of the data was achieved. The results were discussed in relation to previous research within the field.

4.6 QUALITY ISSUES

Whether qualitative or quantitative research is conducted, quality and trustworthiness are important and there are general science-based quality criteria. Patton (2015) presents different quality criteria including the clarity of purpose, epistemological clarity, that methods, design and data collection procedures are appropriate for the nature of the enquiry and that strengths and weaknesses are acknowledged and discussed. Nevertheless, the operationalisation and evaluation of how these standards are reached differs between qualitative and quantitative studies - where quality principles in qualitative research are discussed in terms of trustworthiness while the terms reliability and validity are used in quantitative research. In general, greater agreement regarding criteria used for assessing quantitative than for qualitative research has been demonstrated (Bryman, Becker, & Sempik, 2008).

Quality in qualitative studies

To describe various aspects of trustworthiness in the qualitative tradition, the concepts of credibility, dependability and transferability are used (Lincoln & Guba, 1985) This is discussed below in relation to qualitative studies I, II and IV.

Credibility (Lincoln & Guba, 1985) concerns confidence in the 'truth' of the finding and is dependent on all choices made in the research process. In all studies, we strived to achieve credibility using the following methods. First, triangulation of data sources was used with both interviews and questionnaires with different samples. Secondly, investigator triangulation was used in relation to several researchers in the study, leading to multiple observations and possible heterogeneity in conclusions. The research team consisted of individuals with different backgrounds; psychology, political science, nursing research and two physicians from different medical specialties.

Dependability (Lincoln & Guba, 1985) addresses the degree of stability and consistency of the data. One way of obtaining this is a detailed description of the research process. However, it should be acknowledged that even if the research process is thoroughly described, another researcher may draw other conclusions. In these studies, dependability was enhanced through systematic step-by-step descriptions of the research process. Furthermore, all interviews were conducted by the same interviewer thus during the interviews, all questions were asked and interpreted in the same way.

Transferability (Lincoln & Guba, 1985) depends on the context and may be enhanced in several ways. First of all, this thesis incorporates the inclusion of a variation in participants in the two interview samples used, in terms of specialities, gender, geographic location (Study IV) and experience for both samples. Secondly, the unit of analysis were sought to be described in such a detail that it is possible to evaluate if findings and conclusions are transferable to other settings. Thirdly, through the use of theories in the interpretation of the research findings and finally, the quantitative testing of the result in study III, which was a way in which to enhance transferability and demonstrate the applicability of the findings to other contexts.

Quality in the quantitative study

Quality in quantitative research is evaluated using the concepts of validity and reliability, indicating how well a method measures something. Reliability evaluates the consistency of the measure, while validity measures the accuracy of the method (Shea & Fortna, 2002).

Reliability (Shea & Fortna, 2002) relates to the extent to which the results would be consistent if the study was to be replicated, most often evaluated on the basis of reproducibility and internal consistency. Reliability of this study was enhanced by using the fulfilment of formal regulations as a quality measure, which was found to be most appropriate to enable replication of the study. The loose formulation of the quality measurements of the regulations on which the questions are based may result in low inter-rater reliability. However, the test-retest reliability is likely to be high since the same individual is more coherence between gradings than is the consistently between different individuals.

Validity (Shea & Fortna, 2002) addresses the question of whether a test measures what it is intended to measure. It should be noted that validity is not a quality of the instrument but of the interpretation of the result (Messic, 1989); interpretations may be valid in one context but not necessarily extend to other contexts.

Internal validity relates to the extent to which observed effects can be attributed to the outcome variable. The questionnaire was based on two earlier studies and a validated questionnaire, seeking to enhance internal validity. With regard to the validity of the measure of educational quality, the research group held several discussions about which definition to use. The choice of fulfilment of formal regulations was chosen for several reasons - namely that the regulations cover different aspects of educational quality, are less subjective than an

open question about educational quality and make it possible to replicate the study in other countries.

External validity relates to the extent to which the results can be applied in another context or to other participants. By aiming to include the entire target group, sample representativeness was enhanced. In the interpretation of data, limited conclusions were drawn about generalisation. The generalisability of the study outside Sweden depends on the organisation and content of the educational leadership. To enhance external validity, the contextual background has been thoroughly described.

Reflexivity

Reflexivity relates to awareness of how the researcher and the research process have shaped the data collected, such as prior assumptions and experience (Mays & Pope, 2000).

Differences in power between researcher and research participants is one aspect, and another is how for example, the gender of the researcher, their professional background and social status can influence the research process (Kuper et al., 2008).

During the research process, the author tried several methods to contribute to reflexivity - a digitalised log book, note book and diary. Discussions held during different PhD courses and seminars also contributed to reflexivity. Not least, in discussions about data with the co-authors, the author was made aware of their own interpretations and bias. The retrospective reflections when writing the thesis have also been helpful.

The author has a background in the field of medical education, with a deep knowledge of PGME from the perspective both of PDs as well as that of trainees and supervisors. This preunderstanding could influence how both the interviews and the analyses were conducted. This supported the author in the formulation of the research questions, as well as facilitating the building of trust with the participants. It may also have an adverse effect on data collection and the interpretation of results. To avoid this, the interview guides for the interviews were designed to provide a rich description of the phenomena. During analysis, the author constantly reflected on how a preunderstanding may have influenced the understanding of the data. One of the co-authors who participated in the data analysis had a limited understanding of the area, which helped clarify how the preunderstanding of the author had influenced data analysis and interpretation. The author has also presented and discussed the results in several workshops and courses for both faculty members and administrators for further validation of the results.

In all four studies, the author knew some of the participants through a role as an organisational consultant. The author noticed that this led to a positive attitude towards participation in the studies. This was particularly evident in Studies I and II, where the participants also knew the author's supervisor team. In order for the data to be as comprehensive and directed to the research questions as possible, when communicating with the participants it was important for the author to distinguish the role as a doctoral student from the other professional role held. For example, this was done using several techniques

such as the author adhering to the interview guide (for the qualitative studies) and highlighting the voluntary nature of the participation.

The thesis includes three qualitative studies and one quantitative study. During the author's university studies, the author conducted a qualitative study on leadership and during the author's later working life, also conducting several investigations with an emphasis on using qualitative methods. The choice of methods in this thesis was governed by the research questions but also by the possibility of competence development in both fields since the author's experience in quantitative methods was limited.

4.7 ETHICAL CONSIDERATIONS

Ethical reflection and disclosure are central scientific research quality criteria (Patton, 2015). The reasons for this are several. In order to build support amongst the public, it is important that ethical norms such as truth, transparency and the avoidance of error is attained. It also contributes the fulfilment and development of values and norms such as social responsibility, legality and human rights (Resnik, 2011).

The research was conducted in accordance with the Declaration of Helsinki (World Medical Association, 2002) and throughout the project, ethical issues were discussed and reflected upon. When starting the project, an application for ethical approval was sent to the local Ethical Review Board (2012/1662-31/5). However, on given the nature of the research, the Board decided that ethical approval was not needed.

In all four studies, information to the participants was accurately given, including information about the study purpose, the voluntary nature of the studies, and how data should be treated and stored. Participants in all four studies were provided with written information and information were also provided verbally in the three interview studies. Written consent was obtained from participants in Studies I and II and verbal consent obtained in Study IV.

With regard to anonymity, there were no personal identity numbers used in any of the studies. In Studies I, II and IV, the interviews were anonymised and stored at a secure location. In Study III, the software KI Survey was used for data collection. KI Survey stores email addresses for samples and the questionnaire is then constructed in the programme. The data from KI Survey was then exported to SPSS in an anonymous format for statistical calculations.

As the interviews concerned information that could be sensitive for colleagues and managers, the intention was for the location of the interviews to be private. Studies I and II were conducted in the participant's private workroom. For Study IV, telephone interviews were conducted. The interviewer conducted these calls in a private room and the interviewees were requested to do the same. The interviews were anonymised and stored at a secure location.

5 FINDINGS

5.1 OVERVIEW OF MAIN FINDINGS

The overall aim of the four studies was the exploration of educational leadership in training for physicians and more specifically exploration of the factors influencing the PD role. This chapter initially presents an overview of the findings, which are summarised in Figure 4, followed by a description of each study.

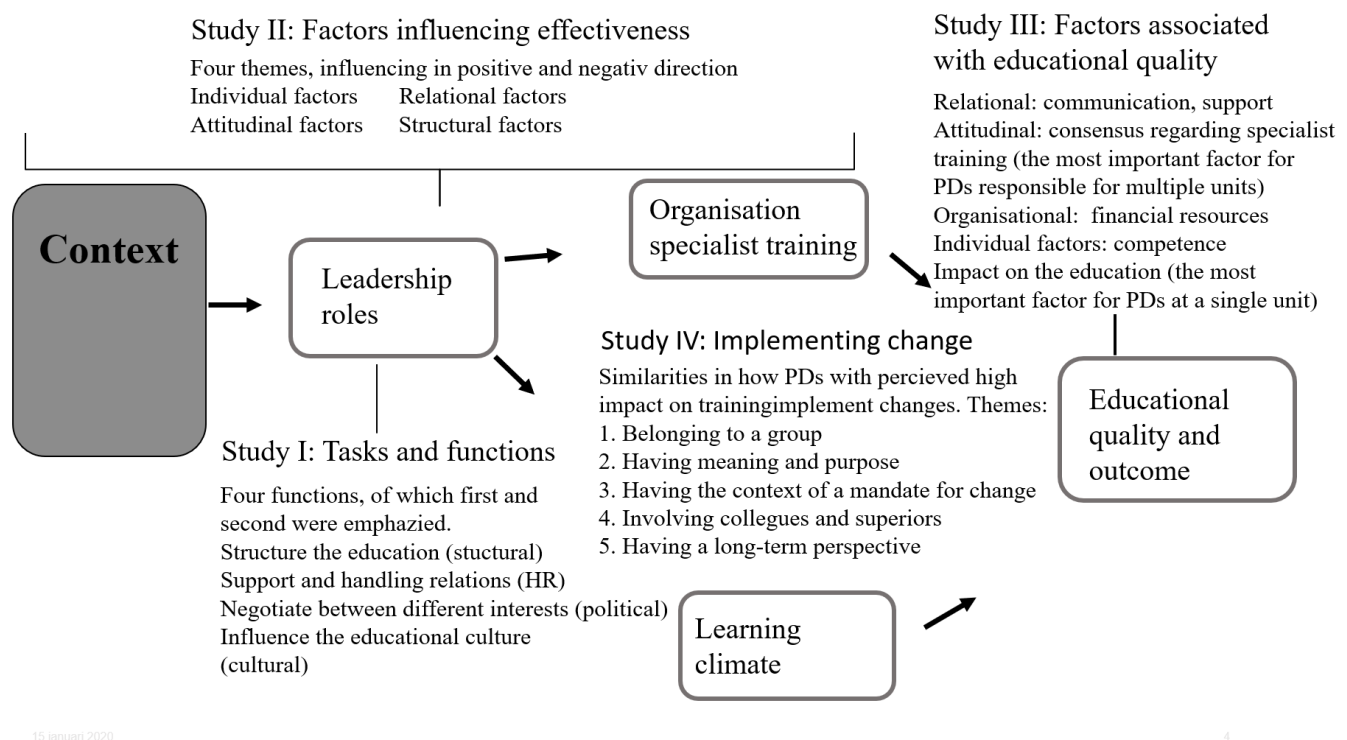


Figure 4. Overview of the main findings presented on the conceptual framework of educational leadership, based on model from Hallinger, Walker & Trung, 2015.

5.2 STUDY I - TASKS AND EDUCATIONAL FUNCTIONS

In Study I, the aim was to explore the PDs' perceptions of their own role in terms of tasks and functions and to use the framework of Bolman and Deal (2013) to gain a deeper understanding of these roles.

The analysis resulted in four functions, which were comparable to the four frames of Bolman and Deal (Figure 5).

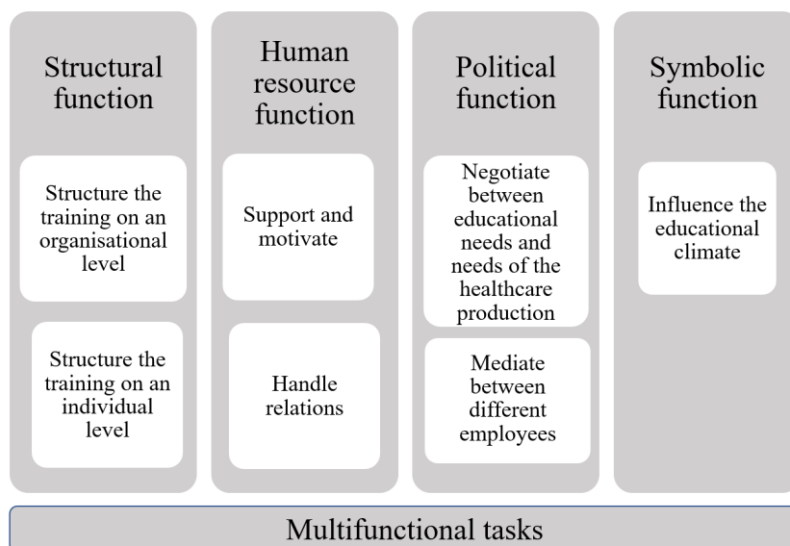


Figure 5. Overview of the result from Study I.

The structural function included tasks that involved structuring, planning and organising training at the organisational level, as well as for the individual resident.

“To structure, yes, that’s what it’s often about for me: to enable, to control and adjust the system to different types of positions and production.”

The HR function involved the provision of personal support to residents and supervisors. Many wanted to increase the level of support for the latter group but lacked time and demand from the supervisors. The function also involved handling relationships and interpersonal problems, for example between the supervisor and resident.

“I ask them during the week, as soon as I see them at the morning meetings. I ask them how it’s going, if it’s working and so on. And I hope they’re honest, otherwise I can’t do much more.”

Work tasks within the structural function were mentioned by all program directors, whilst tasks within the human resource function were mentioned by a majority.

The political function contained primarily two types of task. The first was to negotiate between the education of the residents and the needs of the clinical work. For example, this was manifested in different decision-making bodies where the programme director reminds of the importance of prioritising education, but also to defend the clinical workload for the residents.

“It’s also important for me to emphasise that it (the training programme) is comprehensive, that they need to have this placement, that it’s important for them to have it, for the training programme director, the scheduling staff and others.”

The second was that the PDs perceived the role as including negotiation between the needs of different employees, for example between residents and specialist consultants.

The symbolic function for the PDs was manifested through influencing the educational climate at the workplace.

“Yes, well, it’s also a matter of bringing up questions – to be seen, to be active, in morning meetings and in the clinic. To create an educational...a general educational climate, so that everyone is always teaching.”

This function was described at a low degree by the participants.

Some functions were used in parallel, for example in implementing workplace-based assessment. Work tasks within the structural function were emphasised and to some extent the human resources function as well, whereas the two other functions were used as more complementary. Some of the participants had managerial roles linked to the PD role. These individuals focused on task related to the structural function. They also perceived a higher degree of influence on educational quality. Several of the participants with no managerial position also stressed the structural function but for them, tasks within the human resource function were also emphasised.

5.3 STUDY II - FACTORS INFLUENCING PD EFFECTIVENESS

Study II had the aim of to explore the experiences by PDs of the factors that influence the effectiveness of their work, both in a positive and negative direction. Effectiveness was defined as fulfilment of work tasks. That is, the study explored factors that were perceived to hinder or facilitate how the PDs perform their work. Findings clustered into four themes (Figure 6).

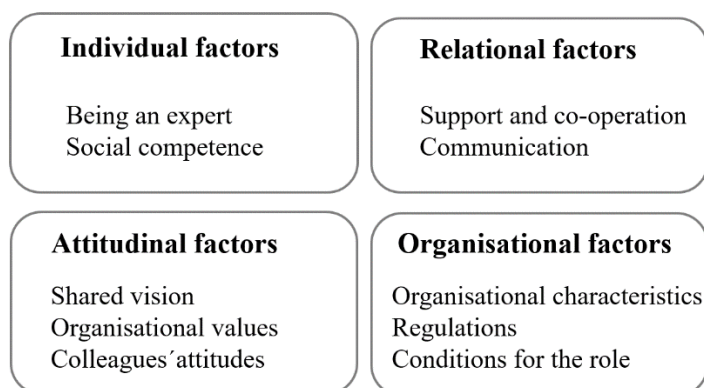


Figure 6. Overview of the result from Study II.

The first theme was “Organisational factors”, including organisational characteristics (e.g. financial resources, clinical activities and organisational structure), regulations and guidelines

(e.g. regulatory decisions and workplace guidelines), as well as conditions for the role (e.g. time and mandate). These were primarily experienced as hindering the effectiveness of the PDs, with the exception of regulations and guidelines, which were perceived as facilitating the role. However, there was a difference between how PDs both with and without managerial roles experienced the conditions for the role. The former group found them to be more positive and facilitating, for example related to mandate and time dedicated to the role.

The second theme was “Attitudinal factors”, in terms of the participants experience of the approaches of others towards specialist training, as well as the role of PD. The subcategory of shared vision, related to shared views of the quality of the specialist training and how this should be enhanced. In the case of obvious needs for quality improvement or if the result of the PD work was obvious for others, it was more likely that the vision was shared among the colleagues and subordinates. The subcategories of organisational values and colleagues’ attitudes was related to the perceived attitudes towards education within the organisation and within the working group. For example, these attitudes were manifest in how prioritisations were made.

The third theme included “Relational factors”, which were perceived as being central to the effectiveness of PDs. Factors were also related to support and cooperation within the faculty, as well as the quality of communication with residents, superiors, supervisors and other consultants. Whether relational and attitudinal factors primarily facilitated or hindered the work of the PDs differed between the participants; some found them to be positive for their effectiveness:

“And thanks to his [former head of department’s] enthusiastic work, there has always been an interest for training and supervision at the clinic, so it is, has been a great help to it in this work with the specialist training.”

Others found them to be negative:

“I get no reply from her (the manager), is it because she in fact doesn’t want to answer, or has she forgotten? (...) That’s what it makes it difficult. Then I start thinking, first I think, oh they are too busy and then I’m thinking, is there another motive?”

The last theme was “Individual factors”, which were linked to the individual qualities of the PDs. The subcategory of being an expert, referred to the PDs own clinical competence, as well as competence in medical education. The subcategory of social network, was included and referred to as an ability to build and maintain relationships. The individual factors were primarily experienced as influencing the effectiveness in a positive direction.

5.4 STUDY III – FACTORS RELATED TO PROGRAMME DIRECTORS AND EDUCATIONAL QUALITY

In Study III the aim was to investigate which factors related to how PDs perceive their role are being associated with high quality in PGME. The response rate was 54% (n=279). Characteristics of the sample are shown in Table 5. All Swedish geographic regions and county councils as well as all specialty groups, were included. The PDs experience from the role varied between 6 months and 20 years, with an average of 7 years.

The criteria for high quality were met by 62% of the PDs. Factors associated with high quality (Table 8) were as follows:

- Relational factors: communication with residents, superiors and supervisors and support from the supervisors
- Attitudinal factors: consensus regarding specialist training at the workplace
- Structural factors: adequate financial resources
- Individual factors: the own competence
- Impact on the education

Factors related to work tasks, conditions for the role (e.g. time) and work engagement were not found to have an association with high quality education.

Table 7. Associations between influencing factors and high quality, where a significant association is found. % = the proportion within the group that answered 1, quality. For example, 104 PDs agreed that they can influence the education. Among these, 68% reported high quality.

	<i>Number of PDs</i>	<i>% high quality</i>	<i>P-value</i>	<i>Crude OR</i>	<i>P-value</i>	<i>Adjusted OR*</i>
<i>Can influence the education</i>			0.12		0.02	
Agree	104	0,68		1.5 (0.9–2.5)		2.1 (1.1–3.9)
Do not agree	173	0,59		1.0		1.0
<i>Adequate financial resources</i>			0.07		0.04	
Agree	119	0,56		1.0		1.0
Do not agree	141	0,67		1.60 (1.0–2.7)		1.8 (1.0–3.3)
<i>Consensus on PGME at the workplace</i>			<0.01		<0.01	
Agree	148	0,72		2.4 (1.5–4.1)		2.9 (1.7–5.2)
Do not agree	122	0,52		1.0		1.0
<i>Sufficient communication with superiors</i>			0.07		<0.01	
Agree	148	0,7		1.6 (1–2.6)		2.2 (1.2–4.0)
Do not agree	128	0,56		1.0		1.0
<i>Sufficient communication with residents</i>			0.03		0.03	
Agree	146	0,68		1.7 (1–2.8)		1.9 (1.1–3.2)
Do not agree	130	0,55		1.0		1.0
<i>Sufficient communication with supervisors</i>			<0.01		<0.01	
Agree	74	0,8		3.2 (1.7–6.0)		5.0 (2.4–10.4)
Do not agree	198	0,55		1.0		1.0

	Number of PDs	% high quality	P-value	Crude OR	P-value	Adjusted OR*
<i>Sufficient support from supervisors</i>			<0.01		<0.01	
Agree	98	0,76		2.5 (1.5–4.4)		2.9 (1.6–5.3)
Do not agree	168	0,55		1.0		1.0
<i>Sufficient own skills</i>			0.18		0.04	
Agree	186	0,65		1.4 (0.8–2.4)		1.9 (1.0–3.5)
Do not agree	89	0,56		1.0		1.0

* Adjusted for gender, years in practice, years as PD, medical specialty, type of role, and number of residents.

The proportion of PDs who agreed with the statement that they had sufficient communication with their supervisors was 27% (74/272), and 37% (98/266) agreed that the communication with the supervisors was sufficient. On the other side, 68% (186/275) agreed that the own competence was sufficient.

The factors of most importance for the educational quality appeared to be dependent on whether the PD was responsible for the specialist training at a single or at multiple units. For PDs responsible for one unit, the perceived impact on the education was the most important factor. In cases where PDs were responsible for a single unit and perceived sufficient impact, 90 % reported high quality. For PDs responsible for multiple units, their experiences of consensus regarding the specialist training within the organisation was the most important factor. Least high-quality education was found for PDs responsible for several units who reported a lack of consensus on the specialist training (33 % reported high quality).

5.5 STUDY IV – SUCCESSFUL CHANGE IMPLEMENTATION

In the last study, the process of successful change implementation for leaders in PGME was explored. The study indicated the presence of similarities in how the PDs had implemented changes. Five interconnected themes crystallised (Figure 7).

Figure 7. Themes and subthemes for study IV.



The first theme; “Belonging to a group” referred to the PDs' description of the change as a joint project carried out together with others. This included participants' experience of implementing change with others (Working as a team). Another aspect was that the PDs also described belonging as something that enhanced their power in implementing the change as they represented a group (Representing a group).

Second theme; “Having a meaning and purpose”, dealt with the participants' experiences of the change as important to the educational quality and how this affected the implementation process. Having a meaning and purpose helped the PDs work intensively with the change, as well as to continue in the role of PD (subcategory, Inner motivator). The subcategory of Creating commitment in the organisation related to the PDs descriptions about how the meaning and purpose were positive in the creation of organisational commitment to the change.

The third theme, “Having a mandate for change” referred to the often implicit descriptions by the participants of how they achieved and used the mandate for change. Two sub-themes emerged, the first of which was experiencing trust and power from superiors.

I try to make sure that the head of the departments are informed so they want the same as I want. That they feel they know what I am doing and what we are doing. So that they are not worried that we'll find something they won't like. So tha, everyone should be confident, so to speak.

The other sub-theme was regarding the mandate as a result of being an expert or leader within the specialist training.

Of course, over the years, I get increased personal authority. I've been working at this place for almost ten years and people trust that I know things. I also have the good fortune, which I've always had to be able to look like, "I know what I am talking about", whether I do it or not. It's a very, very lucky turn.

The fourth theme, “Involving colleagues and superiors” referred to the activities of the PDs in creating understanding, motivation and participation in the change. The participants' narratives contained two sub-themes: anchoring and facilitation. Anchoring involved the repeated performance of activities with different target groups and with a special emphasis on superiors at different levels. Facilitation was illustrated by descriptions of how PDs facilitated situations in order for others to act on the decided change. While many PDs engaged in facilitation, it was rarely mentioned as an active, manifest strategy.

The last theme was “Having a long-term focus and strategy”. This manifested itself in two interconnected sub-themes - the approach to the change process (having patience) and how the change was practically implemented in different steps (execution of the change as a step-

by-step process). The majority of PDs did not describe a strategy for the whole process, rather most descriptions instead focused on activities for the first phases of the change process.

6 DISCUSSION

This thesis set out to explore factors influencing the role of PDs in Sweden. All studies are positioned within a cultural conceptual perspective on leadership, recognising context as an influential factor in facilitating and limiting leadership and were guided by a constructivist approach. The research questions in the four studies contributed with complementary perspectives on educational leadership, including the tasks and functions (Study I), factors influencing role effectiveness (Study II) and educational quality (Study IV), and the process of how tasks and factors interact (Study IV). Taken together, the studies contribute empirical data with the potential to provide insight into the role of PD with the future intention of contributing to high quality in specialist training for physicians.

The findings of this thesis point towards an understanding of the PD role as being multifunctional, influenced by interrelated factors on different levels. This characteristic makes it difficult to emphasise a limited number of factors that are the most important to an effective role. However, in line with the explorative approach of this research, it provides significant insight into the phenomena through identification, description and analysis.

In the following chapter, the findings are presented and elaborated on in relation to empirical and theoretical literature. This is followed by a discussion of methodological issues.

6.1 PROGRAMME DIRECTOR ROLE AND TASK

Factors influencing the role of PD must be understood in relation to the tasks that should be performed within the role. The tasks were primarily investigated in Study I but results from Studies III and IV also contributed to a deeper understanding.

Study I explored the role of PD in terms of tasks and functions. The result indicated variation in how PDs interpreted their roles - where some emphasised the organisation and structure of the specialist training (the structural function), others emphasised the supportive and communicative function (the HR function). Less frequently described was the political dimension of leadership, including negotiation and mediation, for example regarding the need for education in the production of healthcare. Nor were tasks connected to influencing the educational climate (symbolic function). Some tasks required a multifunctional leadership, for example for the implementation of changes. Application of the result from Study IV studying successful change implementation to the framework presented in Study I creates a different picture. Unlike the PDs in the first study, for this sample of PDs perceiving a sufficient influence on specialist training, the political and symbolic functions were highly visible in the PDs descriptions of the change process. The human resource function were also expressed both with regard to the feeling of belonging to a team and the involvement of colleagues and superiors.

The functions have similarities to earlier frameworks describing the practices (Bing-You, Holmboe, Varaklis, & Linder, 2017; Lieff & Albert, 2012; Malling, Scherpbier, & Ringsted, 2007) and competencies (Lieff et al., 2016; Sloatweg et al., 2014). However, the framework for the political function described by Bolman and Deal is less emphasised in the other frameworks.

The background to the differences in how PDs in Studies I and IV described their tasks, raises one question: if PDs with significant influence on specialist training have a special way of interpreting the task and role, and is their way of working more successful? In support of this reflection, is the assumption that leaders focusing on all four perspectives are more effective (Bolman & Deal, 1991) and hence are not limited to one or two functions. Also supporting this view is the special context of the specialist training, where there is constant tension between education and healthcare production, which means that prioritising and negotiating the design and quality of education are fundamental to the effectiveness of the role.

Frameworks designed to define competencies needed in the role also emphasise competencies at different levels, of which the structural and administrative function is the small part (Lieff, 2016). Another possible explanation is that change management involves processes that differ from other tasks. That the components in the process of successful change implementation are in line with other change management theories supports this reflection. There are numerous models for change management. John Kotter's (1996) process for transformational change in eight stages is one that has been used in health care with a positive result (Maclean & Vannet, 2016; Mørk, Krupp, Hankwitz, & Malec, 2018; Small et al., 2016). Several themes identified in Study III is consistent with the stages of the change processes described by Kotter, as well as to other process descriptions within the field of medical education (Fokkema, 2012). Viewing the result in light of leadership literature suggests that it may be a combination of these two, where successful leadership in specialist training involves all four functions and in particular with regard to the implementation of change, the HR function and political function are particularly important.

Lieff and Albert (2010) used the Bolman and Deal framework to understand how the work of educational leaders is perceived. They found that the political frame was the most prominent and the structural frame less so, while our study showed the contrary. The fact that the result differed between the result in Study I and the results of the Lieff and Albert study, leads to the suggestion of reflecting on the background to these discrepancies. There are differences regarding research questions, populations and the methods used - where the Lieff and Albert study aimed to explore how participants perceived their work in terms of the cognitive perspectives used, our study focused not on cognitive perspectives but on tasks performed. The method of our study, where data consisted of work task descriptions differed from the survey questions in the Bolman and Deal questionnaire that was used in the study with the intention of measuring cognitive perspectives. Finally, there might be context-specific differences in terms of both level of leadership role and differences between the educational systems in different countries. In her thesis, Vuori (2011) studied program directors at

university level, also showing an emphasis on the structural and HR-frames, which is in line with the result in study I.

Study IV explored the associations between work tasks and educational quality. There was no association found between work tasks with regard to either PDs who reported specific frames (e.g. reported working mainly with the organisational structure) and quality or between PDs who acted in multiple functions (e.g. reported working a lot with a structural, political, HR and symbolic frame). This result supports the assumption that contextual factors outside the leadership role have a significant influence on PD efficiency, as suggested in earlier research (Malling, Mortensen, Scherpbier, & Ringsted, 2010).

In summary, educational leadership in physicians' specialist training seems to include several functions, which require a breadth of competencies. The theoretical frame of Bolman and Deal clarifies the negotiating and mediating role of the PD.

6.2 FACTORS INFLUENCING THE PROGRAMME DIRECTOR ROLE

Study II, *Study III* and *Study IV* explored factors influencing the effectiveness of the PD from different perspectives. Findings from *Study II* showed that facilitating factors were found in the individual PD factors such as their own competence, and structural factors in form of written regulations were found to be facilitators of the execution of the role. Structural factors such as conditions for the role (e.g. time) and organisational factors (e.g. financial priorities) were perceived as barriers. The experiences of relational factors (e.g. communication and support) and attitudinal factors (e.g. attitudes towards education and the PD role) varied between different PDs, suggesting that this is something that differs between different workplaces in contrast to the structural and individual factors that are more similar across the population of PDs.

The findings from *Study III* indicated support for the factors identified in Study II by identifying several factors as both facilitators and as being associated with high quality in specialist training. The relational and attitudinal seemed to be of particular importance. The findings also point to factors at individual level (PDs own competence), as well as organisational level (adequate financing) having an impact on educational quality. Depending on which level of leadership PDs were at, different factors were most important to quality. For PDs responsible for one department or healthcare centre, the perceived impact on specialist training had the strongest association with educational quality. For PDs responsible for multiple units, attitudes within the organisation were the most important factor.

The findings from *Study IV* showed that successful change implementation was related to several different factors. Having a mandate for change was central, strengthened by both the experienced trust from superiors and the expert knowledge possessed by PDs themselves. Another facilitating factor was the PD belonging to a group, for example a group of other PDs. This belonging was shown to be manifest in the practical project as teamwork as well as an increased power when representing a group, not just a single PD. In the faculty the process

of involving colleagues and superiors was manifest through both persistent anchoring and facilitation of their actions. Finally, the PD holding a long-term perspective on the change was a facilitator.

Using the conceptual framework (Figure 4), the findings show that excluding regulations, contextual factors primarily hinder the role, while individual leadership factors are mainly facilitating factor. However, there was no association demonstrated for factors related to the conditions of the role such as work tasks and time. Factors relating to the specialist training, such as learning climate and organisation of specialist training differ between different PDs in terms of whether they are hindering factors or facilitators. Together, these studies show that the leadership role alone is not enough to explain the educational outcome. This is also indicated in previous studies (Lieff & Albert, 2010) and strengthened by the results in this thesis.

One way to understand the findings is to view them through the concept of power (French & Raven, 1959; Raven, 1965). Factors facilitating the role were associated with personal power sources; expert power (e.g. own competence), information power (e.g. knowledge of regulations) and referent power (e.g. relations and social network). Given that the role of the PD is lower leadership role, which often in itself lacks position power, this is in line with what could be expected. A lack of position power is also congruent with the results from undergraduate level studies (Sundberg, Josephson, Reeves, Nordquist, 2017). However, one exception was PDs with managerial roles who also experienced legitimate power.

6.3 METHODOLOGICAL CONSIDERATIONS

This thesis serves as an important contribution to the research field of medical education as it explores leadership in relation to the context of specialist training. The design where one study was based on previous studies, helped to deepen the understanding of the highest priority research questions. The different methods used in the study also deepen the understanding. However, the thesis has some limitations. The use of self-reported data, the sample and the measurement of educational quality are discussed below.

The role was studied from the perspective of the PD. In addition to being in line with the thesis research questions, it enhanced dependability in a clear and distinct research area. The limitations of self-reported data depend on the scope of the enquiry (Chan, 2008). Using self-reported data may have potential negative effects on validity as respondents may give desirable answers or omit information because of its sensitive character. The author did not consider the information requested in this thesis to be sensitive such that any bias would affect the result. One way of enhancing validity is to compare the results from one self-reported measure to those of another self-reported measure - concurrent validity. For that purpose, Study III used a quantitative measure to measure what had already been measured in Studies I and II. Recall error is another potential limitation, which could be a limitation to the

study of work tasks. Due to this, other sources of information were considered. There were different ways to answer the question of what PDs are doing. Observations could be made, which was considered less feasible as the PD work tasks are carried out at irregular intervals in which days or weeks may pass during which the PD conducts clinical tasks without anything to report or observe in connection with the PD role. For the same reason diaries were not used. Another way that was given consideration, was to ask others such as the residents or the PD's manager. The research questions seeking the perspective of the PD was one key reason for not doing this, along with the fact that earlier studies showed limited awareness of the PD work tasks amongst other stakeholders (Malling, Scherpbier & Ringsted, 2007). Self-reported data was also used in order to capture educational quality in Study III. Using formal regulations was one way to reduce subjectivity rather than using the PDs' own ratings for the quality of the education. One of the recommendations for further research is to follow-up on the findings of this thesis using other data sources.

In Studies I and II, the sample consisted of PDs from two hospitals in the Stockholm region. Thus, the PDs from family medicine and provincial hospitals were not represented. Nevertheless, taking into account the exploratory purpose of the study where the results would be further investigated in a survey, the sample was considered sufficiently heterogeneous with respect to other aspects such as specialties, type of role and participant experiences as PDs. The sample in Study III consisted of PDs in a voluntary network at the Swedish Medical Association. Although not a complete register, the network is the largest of its kind in Sweden. The response rate of 54 % raises the question of selection bias but as a result of the voluntary character of the register, it is not updated with names or email addresses, which makes it difficult to draw conclusions regarding the actual response rate. The spread of respondents in terms of different background variables, indicated that the final sample was likely to be representative of the population of PDs in Sweden.

Study III explored factors related to the role of the programme directors that are associated with high educational quality. Generally, in the field of educational leadership, associations between leadership and educational quality are complicated to measure as the influencing factors are numerous and it is hard to isolate the impact of the educational leader. In medical education, the ideal measurement from a validity perspective could be argued to be the patient care outcome, which is associated with many difficulties. Another way is to measure the achievements of the residents. In the school sector, these kinds of measures have been used, however factors other factors may affect student achievement more than the leadership practices, like social background. This has been solved by comparing students' results with results from schools with similar conditions (Branch, Hanushek & Rivkin, 2013). Similar measurements or solutions are not able to do that in the Swedish context as there is no national data on residents' achievements. Instead, the "conformance to requirements" definition (Crosby, 1979) was used meaning that quality was operationalised to fulfil a number of formal requirements. There were several reasons for using this type of definition. Firstly, in the context of PGME, quality control is often carried out by checking whether a

number of standards are met (World Federation of Medical Education, 2015). Secondly, these may be somewhat less subjective than, for example direct questions on quality asked of PDs or residents. Finally, this was considered most appropriate for the study's reproducibility in other settings. However as mentioned in the methods section, one weakness of this measure is the somewhat vague formulations of the regulations, which could render a low inter-rater reliability since they can be interpreted differently by different persons. The test-retest reliability is probably higher, considering the lower variations within the individual.

When reflecting retrospectively on the methodological aspect, the author learned some additional lessons. First, setting up a trustworthiness protocol (Amankwaa, 2016), with details noting the characteristics and a rigorous process and timeline directing the planned time for conducting trustworthiness activities may have increased awareness of the research process and also made it easier for others to judge the research of others. Second, the scope of the research is vast with multiple theories of both leadership and the context of postgraduate medical education. Even with the author's in-depth knowledge in the area of specialist training and PDs, as a doctoral student it has been interesting but challenging to get into the broad research areas of leadership and medical education. Therefore, certain theoretical and methodological perspectives can be traced throughout this thesis, even if not central to the scope of the research. Given this, one lesson has been to make even more congruent choices, especially in terms of theoretical perspectives.

7 CONCLUSIONS

Based on the empirical findings and theoretical reasoning, the conclusions based on this thesis can be summarised as follows:

- The role of the PD include several different functions. The PDs emphasise their structural and supportive function. However, the use of a political and symbolic function may result in positive consequences for the effectiveness of the role.
- Factors that influence the role of PDs are related to various aspects of the system.
 - Contextual factors such as organisational characteristics, organisational values and attitudes, and
 - Factors related to the leadership role, such as as conditions for the role, competence, and the ability create an impact at the workplace
 - Factors related to the specialist training organisation and climate, such as communication, support and attitudes.
- Many factors were connected to the power of the PD, where factors that enhanced personal power seemed to be of particular importance.

- Factors regarding all aspects of the system were associated with educational quality however, factors related to communication, support and attitude seemed to be of particular importance.

Taken together, the thesis contributes to a deeper understanding of the PD role from a cultural leadership perspective. This thesis shows that educational leadership in specialist training shares common features with the literature on general leadership. What distinguishes leadership in this context is the constant tension between education and production, the influence of the PDs on both the educational and service line, which means that factors other than the leadership role and next line leadership are essential for an effective PD role.

7.1 FUTURE RESEARCH

Suggestions for future research emerged during this work. First of all, different models regarding variations in educational leadership in physicians' specialist training around the world could be explored and contrasted. The Bolman and Deal theory has been shown to be useful and may be used advantageously for that purpose.

This thesis explored educational leadership from the perspective of PDs themselves. More research is needed to understand the role from the perspectives of other stakeholders. Considering the findings from this thesis, it would particularly interesting to investigate how the role of PD can be strengthened from the perspective of superiors.

In this study, ethnic diversity among PDs or residents has not been addressed. In European countries, this area has been less studied than in North American countries (Rotgans, 2012). Due to the increased diversity in European countries, not least in Sweden where half of all medical certificates are given to individuals with foreign medical education (Socialstyrelsen, 2019), educational leadership in medical education from the perspective of diversity should be studied.

Finally, this thesis has attempted to investigate the role of PD in connection to educational quality. Future research within the field of educational leadership would deepen the knowledge on how educational leadership is associated with educational quality, with the aim of further enhancing the PDs impact on the quality of education.

7.2 IMPLICATIONS FOR PRACTICE

The findings in this thesis highlight the versatility of educational leadership in physicians' specialist training and its being influenced by a variety of factors where mandate and influence over education seem to be common features. Based on this conclusion, there are suggestions arising from this thesis that may strengthen the role of the PD and improve the quality of specialist training in the long-term.

A differentiated strategy should be formulated that involves activities at organisational, group and individual levels. At an organisational level, how education is valued and attitudes

towards the role of the PD differ between different contexts and accordingly, provide different frames for other factors influencing the work of the PD. Thus, a strengthened PD role depends on the fact that educational issues are valued within the organisation and that this is reflected in the organisational structure, decision-making bodies and activity follow-up. Activities at the organisational level also include competence development activities, which should strengthen competence across all four functions, where the political and symbolic functions may be of particular importance but maybe not consciously performed. Access to strong networks may enhance the expertise and information power of the PD, as well as contribute to successful implementation of changes within the specialist training.

At a group level, good relationships and positive attitudes towards education within the faculty promote the work of the PD. Meeting points between PDs and supervisors, superiors and residents should be created. Working in teams may be a helpful component and connected to findings regarded the importance of mandate and consideration should be given to the combination of a PD role and an individual with managerial responsibility for residents.

At the individual level, each PD should increase awareness and competence within the political aspects of the role, in order to optimise influence over the education. This could include stakeholder analyses, agenda setting and continual access to superiors and decision-making bodies. Influence over education can also be increased by actively working to create good relationships with residents, supervisors and superiors. Next level leadership seems to be of particular importance.

Additionally, implications at the regulatory level may be considered. Regulations and guidelines should be designed so that the various functions of the PD role are made visible and the mandate of the role is strengthened.

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